Date: Fri, 21 May 93 20:53:44 PDT
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V93 #620
To: Info-Hams

Info-Hams Digest Fri, 21 May 93 Volume 93 : Issue 620

Today's Topics:

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Fri, 21 May 1993 06:58:01 GMT
From: mvb.saic.com!unogate!news.service.uci.edu!usc!howland.reston.ans.net!gatech!
concert!samba!usenet@network.UCSD.EDU
Subject: Alinco DJ580 Gets HOT!!!
To: info-hams@ucsd.edu

In article <C7AFzz.G6K@boi.hp.com> dave@boi.hp.com (Dave Fujii) writes:
>I've got a DJ580T HT that, when transmitting on medium or high power
>(12V operation) the unit gets very hot -- too hot to hold! Has anyone
>else experienced this? I'm wondering if something is wrong with the
>unit.

No, theres nothing wrong with that! It gets hotter than heck even with
the 7.2V packs when on M or H power....

Date: Fri, 21 May 1993 14:04:06 GMT
From: news.acns.nwu.edu!casbah.acns.nwu.edu!rdewan@network.UCSD.EDU
Subject: An interesting New-Ham story
To: info-hams@ucsd.edu

Here is an interesting new-ham story.

I met a ham, Jim (not his real name as he wants to remain anonymous) N9!!!, on our club's 2m repeater yesterday. We started chatting and he told me that he was interested in getting going with HF and using CW. We exchanged phone numbers for a follow up. On the phone we talked about how we got into ham radio. I told him about my interest in CW and asked him what prompted him to go in for a Technician-with-code license.

I found his story fascinating and want to share it with you.

He is a neurologist with a specialty in spinal injuries. A few months back he was at a party hosted by a doctor friend, let's call him Rob, who was a ham. It was a weekend party and at some time Rob was in his shack monitoring when he came upon a weak CW signal - a plea for help from a station deep in the Amazon rain forest. Some one had fallen down from a tree and had injured his spine. He seemed quadriplegic with no movement in any extremity. His companion got on the radio to get help. Most fortuitously, his signal was picked up by Rob. When Rob figured out that the spine was injured, he called for Jim to help him. Rob started to relay messages in CW between Jim and the victim's companion.

Jim diagnosed the injury to be a dislocation of the spine. Based on the movements and sensations, as reported in CW by the companion to Rob, Jim figured out the particular vertebra that was dislocated. If this had occurred in US, the victim would have been strapped to a board and taken to a hospital for possible surgery. This was not feasible in the rain forest. Some thing had to be done before the spine was permanently injured. The victim could not be moved without some medical attention first.

Over the next hour Jim described a procedure to correct the dislocation. It involved manipulating the spine by moving the body in some particular fashion to correct the dislocation. The companion, Rob and Jim were succesful in getting the vertebra back in position. The spine was still injured and needed care and so with Jim's long distance help, the companion fashioned a splint for the victim so that he could be transported.

Jim was so impressed with ham radio that he decided to become a ham himself. He realized that code would be the tough part and so he

first studied code - pretty much by himself using computer programs.
He looked over the theory a couple of hours before taking the test.

He is on the air now.

Is this not a great hobby?

Best regards.

Note: This has been posted with "Jim's" permission. I faxed him a
copy of it before posting. There are members of my club who read this
news group regularly. They will easily figure out whom I have
writen about. I trust that they will not divulge the identity of
Jim or ask him questions about this on the air.

Rajiv
aa9ch
Address: r-dewan@nwu.edu
Phone: None on HF. Only CW.

Date: 21 May 93 20:07:41 GMT
From: ogicse!hp-cv!sdd.hp.com!col.hp.com!news.dtc.hp.com!srgenprp!
alanb@network.UCSD.EDU
Subject: Audio filter question???
To: info-hams@ucsd.edu

Daryl Sampson (sampson@etowah.cs.unca.edu) wrote:
: I recently have been debating purchasing an audio filter to accompany my
: kenwood ts520s. My question is for the ones in netland with experience
: with both the older style resistor/capacitor type filters (ie. The Autek
: Research type) and the newer DSP type filters. I have noticed that for
: only around 50 bucks more I could try out one of the new DSP filters with
: the automatic notch filter for stations tuning up on frenq,etc. How is
: the performance of these new filters? Are they better than the older style
: and is the additional cost worth it. Thanks in advance. Feel free to reply
: here or via email via this account.

The W9GR DSP automatic notch filter works much, much better than a tunable
analog notch filter. It automatically finds all carriers in the audio
passband and notches them out within milliseconds. With an analog filter,
you have to manually tune the notch to the offending carrier. And it only
works on one frequency at a time.

If what you want is a CW bandpass filter, the difference between analog
and digital is not so dramatic. Contrary to common belief, it is NOT
true that digital filters do not suffer from ringing.

An analog bandpass filter theoretically rings forever, with an exponentially decay. In practice, the ringing becomes unnoticeable after 2 or 3 time constants (typically a few milliseconds.)

An IIR (infinite-impulse response) digital filter responds in exactly the same way. In fact, IIR filters are often designed using analog transfer functions, so the band shape and time response are identical.

FIR (finite impulse response) digital filters stop ringing entirely after a certain time (typically a few milliseconds.) The ring time is equal to the filter sequence length. The sharper the filter, the longer the ring time. The disadvantage of FIR filters is that they require more computations (i.e. faster DSP) than IIR filters.

Bottom line: An FIR digital filter might typically have a little less noticeable ringing than an analog filter of equivalent bandwidth and shape factor, but the difference may not be enough to justify the additional circuit complexity and cost.

Of course the digital filter has other attributes as well, such as the ease of adding additional bandwidths, and filter functions (such as the automatic notch.)

AL N1AL

Date: 21 May 93 20:15:02 GMT
From: ogicse!hp-cv!sdd.hp.com!col.hp.com!news.dtc.hp.com!srgenprp!alanb@network.UCSD.EDU
Subject: Balanced feedline (was: G5RV)
To: info-hams@ucsd.edu

Mike Butts (mbutts@mbutts.mentorg.com) wrote:

: I was about to suspend a full-size G5RV between a pair of very tall trees
: at our new place. Now I'm not so sure. I want an all-band antenna for
: both hamming and SWL. I'm only putting up one HF antenna. I already
: have a tuner (AEA Econotuner) which has a transformer for balanced feed.
: So I'm thinking a "Zepp" fed by "open" twinlead (the stuff that's about
: an inch wide, 450 ohms I dimly recall, that they have at Portland Radio
: Supply) might be just the ticket. But I have questions.

I'm a little nervous about feeding high-SWR balanced feedline with a tuner with a transformer (balun). The high SWR can cause much higher voltages and currents in the balun which might cause core saturation. If you're using a kilowatt balun at 100 watts, that should be fine.

Otherwise, I'd be careful.

: First, the lack of shielding. Will this subject me to more noise picked up
: from the house and shack, such as computers and power lines?

You'd have the same problem with coax, if there were feedline radiation.
(What radiates can also receive). If the twin-lead is well-balanced,
you shouldn't have any particular problem.

: Second, I'm planning to use the 'dryer vent stuffed with foam' method shown
:in the ARRL Handbook to get the feedline, plus several 9913 coaxes for VHF,
: into the house. How much clearance is needed to avoid messing up the
: balanced feedline?

A guess: Maintain a spacing between the twinlead and any other feedlines
and metal of at least twice the twin-lead wire spacing.

: Third, is there any allband wire antenna with shielded coax feedline that
: stands up to proper analysis? I think the big appeal of the G5RV is the
: belief that it's an efficient allband wire antenna with coax feed.

Well, there's always the multiband trap dipole. You can buy them ready-
made or build.

AL N1AL

Date: 21 May 93 18:56:47 GMT
From: ogicse!emory!sol.ctr.columbia.edu!news.columbia.edu!cunixf.cc.columbia.edu!
mac20@network.UCSD.EDU
Subject: DJ-580t & FT-530 opinions
To: info-hams@ucsd.edu

I really don't see how the 530 and the 580 can be considered all that simliar
sure they're both dual-band with all the standard features but the Yaesu 530
is basically a next generation radio compared to the Alinco 580.

the 530 has more sophisticated features then the 580, like automatic
power consumption features including transmitting (auto. turn down power when
it sees your talking to a strong repeater), better knobs, the numbers don't
wear off the keypads, and what really tickles my fancy, a built in clock,
auto on features.. .

Plus, i've been inside both radios and the yeasu is much prettier, and easier
to take apart then the alinco. just looks like it was put together with
more experience.

I'm hoping to switch my 470 with my fathers' 530, maybe he won't notice

Mike
KF2NV
****
**** "Of course TV is a medium, ****
***   It's not rare, ***
***   And it's certainly not well done." ***

Date: 21 May 93 19:42:00 GMT
From: ogicse!uwm.edu!ux1.cso.uiuc.edu!news.cso.uiuc.edu!freeman@network.UCSD.EDU
Subject: Intermod/spurious sigs a common HT problem?
To: info-hams@ucsd.edu

I have an FT-530 that I bought while visiting San Francisco. I noticed no intermod while I was there (abt 2 weeks). I was staying in a downtown hotel. Of course, all I had for an antenna was the issue duck. Back here in central Illinois, there ain't too much intermod to be found, so I have had no problems here, either. I used to own a FT-470, adn I loved it. The 530's user interface is a natural extension of the 470's. If you like the 470, you'll love the 530, IMHO.

The bottom line here is that someone will always find something wrong with anything (for some people its *everything* :), so just evaluate the rigs for the features you want, and the price you can afford, and you won't go wrong.

73, Jay

Date: 21 May 93 15:44:33 GMT
From: ogicse!emory!gatech!kd4nc!ke4zv!gary@network.UCSD.EDU
Subject: Repeater Questions
To: info-hams@ucsd.edu

In article <nick.4pwk@hotcity.COM> nick@hotcity.COM (Nick Assar) writes:
>1) Does one need a repeater license to setup and operate a repeater?

In the US, separate repeater licenses are no longer required. Any Technician, or above, licensee can put up a terrestrial repeater.

>2) Are duplexers necessary? Can I just install 2 antennas (1 for receiving and >1 for transmitting)?

Yes you can, 50 to 100 feet of *vertical* spacing will work for modest

power levels. Several thousand feet is required for sufficient *horizontal* separation at the same height. Duplexers are usually worth the cost, however, because using the same antenna for transmitting and receiving will make your machine more reciprocal, IE it will hear and be heard equally well. Nobody likes an alligator (all mouth and no ears), and a bunny can be frustrating for the users as out of range signals will key up your repeater with no way for you to tell them they're doing it.

>3) How high up do I need to put it so it will cover 30 miles?

Depends. The frequency band and the terrain will determine coverage. The optical horizon is 30 miles at about 1,000 feet above terrain. The radio horizon will be further, up to 40% depending on frequency. My 440 MHz machine is 970 feet above ground on a TV tower. The ground level is 1000 feet above sea level. To the north I get 30 mile coverage into rough rising terrain, with some shadow areas, and some exceptional hilltopping out to over 100 miles. To the south the ground falls off rapidly and I get good coverage out to 70 miles, again with some exceptional hilltopping much further out. The machine puts 6 watts to the antenna. A lot more power won't help much. Other machines in town run 100 to 400 watts and have no better coverage.

Gary
--

Gary Coffman KE4ZV	You make it,	gatech!wa4mei!ke4zv!gary
Destructive Testing Systems	we break it.	uunet!rsiatl!ke4zv!gary
534 Shannon Way	Guaranteed!	emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244		

Date: 21 May 93 01:30:02 GMT
From: wupost!bigboy.sbc.com!news.mtholyoke.edu!nic.umass.edu!m2c!jjmhome!pig!die@decwrl.dec.com
Subject: Summary of how POCSAG paging works
To: info-hams@ucsd.edu

The following summary describes the coding used on POCSAG pager signals and may be of interest to those curious about what those ear-splitting beeps and buzzes mean and how they encode data. This summary is based on a very old text of the standard from my files; the current text of the POCSAG standard is available as CCIR Radiopaging Format 1.

Note that some current POCSAG signals (so called Super-POCSAG) transmit paging at 1200 or 2400 baud instead of the 512 baud I refer to here, but use essentially a similar coding standard.

The interested USA reader is reminded that willfully intercepting

other than tone only paging is a violation of the ECPA with similar penalties and criminal status to willfully intercepting cellular phone calls.

The interested reader is advised that at least two of Universal Shortwave's RTTY reading devices (the M8000 and the new C-400) are capable of reading at least the older 512 baud version of POCSAG paging, so commercial devices for this purpose are currently being sold in the USA.

And finally, much alphanumeric paging - particularly that installed some time ago, uses a proprietary Motorola encoding format called GOLAY which is quite different from POCSAG. The two can be told apart by their baud rates - GOLAY is 600 baud.

POCSAG

First POCSAG stands for Post Office Code Standarization Advisory Group. Post office in this context is the British Post Office which used to be the supplier of all telecommunications services in England before privatization.

POCSAG as defined in the standard, (original POCSAG) is 512 bits per second direct FSK (not AFSK) of the carrier wave with +- 4.5 khz shift (less deviation than that is used in some US systems). Data is NRZ coded with the higher frequency representing 0 (space) and the lower one representing 1 (mark).

The basic unit of data in a POCSAG message is the codeword which is always a 32 bit long entity. The most significant bit of a codeword is transmitted first followed immediately by the next most significant bit and so forth. The data is NRZ, so that mark and space values (plus and minus voltages) as sampled on the output of the receiver discriminator at a 512 hz rate corrospond directly to bits in the codeword starting with the MSB. (Note that the audio output circuitry following the discriminator in a typical voice scanner may considerably distort this square wave pattern of bits, so it is best to take the signal directly off the discriminator before the audio filtering).

The first (msb) bit of every POCSAG codeword (bit 31) indicates whether the codeword is an address codeword (pager address) (bit 31 = 0) or a message codeword (bit 31 = 1). The two codeword types have have different internal structure.

Message codewords (bit 31 = 1) use the 20 bits starting at bit 30 (bit 30-11) as message data. Address codewords (bit 31 = 0) use 18 bits starting at bit 30 as address (bits 30-13) and bits 12 and 11 as

function bits which indicate the type and format of the page. Bits 10 through 1 of both types of codewords are the bits of a BCH (31,21) block ECC code computed over the first 31 bits of the codeword, and bit 0 of both codeword types is an even parity bit.

The BCH ECC code used provides a 6 bit hamming distance between all valid codewords in the possible set (that is every valid 32 bit codeword differs from ever other one in at least 6 bits). This makes one or two bit error correction of codewords possible, and provides a robust error detection capability (very low chance of false pages). The generating polynomial for the (31,21) BCH code is x**10 + x**9 + x**8 + x**6 + x**5 + x**3 + 1.

Codewords are transmitted in groups of 16 (called batches), and each batch is preceeded by a special 17th codeword which contains a fixed frame synchronization pattern. At least as of the date of the spec I have, this sync magic word was 0x7CD215D8.

Batches of codewords in a transmission are preceeded by a start of transmission preamble of reversals (10101010101 pattern) which must be at least 576 bits long. Thus a transmission (paging burst) consists of carrier turnon during which it is modulated with 512 baud reversals (the preamble pattern) followed by at least 576/512 seconds worth of actual preamble, and then a sync codeword (0x7CD215D8), followed by 16 data/address codewords, another sync codeword, 16 more data/address codewords and so forth until the traffic is completely transmitted. As far I am aware there is no specified postamble. I beleive that all 16 of the last codewords of a transmission are always sent before the carrier is shut off, and if there is no message to be sent in them the idle codeword (0x7A89C197) is sent. Later versions of the standard may have modified this however.

In order to save on battery power and not require that a pager receive all the bits of an entire transmission (allowing the receiver to be turned off most of the time, even when a message is being transmitted on the channel) a convention for addressing has been incorperated which splits the pager population into 8 groups. Members of each group only pay attention to the two address code words following the synch codeword of a block that corrospond to their group. This means that as far as addressing is concerned, the 16 codewords in a batch are divided into 8 frames of two codewords apiece and any given pager pays attention only to the two in the frame to which it assigned.

A message to a pager consists of an address codeword in the proper two codeword frame within the batch to match the recipients frame assignment (based on the low three bits of the recipient's 21 bit effective address), and between 0 and n of the immediately following code words which contain the message text. A message is terminated by

either another address code word or an idle codeword. Idle codewords have the special hex value of 0x7A89C197. A message with a long text may potentially spill over between two or more 17 codeword batches.

Space in a batch between the end of a message in a transmission and either the end of the batch or the start of the next message (which of course can only start in the two correct two codeword frame assigned to the recipient) is filled with idle codewords. A long message which spills between two or more batches does not disrupt the batch structure (sync codeword and 16 data/address code words - sync code word and 16 data/address codewords and so forth) so it is possible for a pager not being addressed to predict when to next listen for its address and only turn on it's receiver then.

The early standard text I have available to me specifies a 21 bit address format for a pager (I beleive this has been extended since) with the upper 18 bits of a pager's address mapping into bits 30-13 of the address codeword and the lower 3 bits specifiying which codewords within a 17 codeword batch to look at for possible messages. The address space is further subdivided into 4 different message classes as specified by the function bits (bits 12 and 11 of a codeword). These address classes corrospond to different message types (for example bits 12 and 11 both zero indicate a numeric message encoded in 4 bit BCD, whilst bits 12 and 11 both set to 1 indicate an alpha message encoded in 7 bit ASCII). It was apparently envisioned that a given pager could have different addresses for different message types.

There are two message coding formats defined for the text of messages, BCD and 7 bit ASCII. BCD encoding packs 4 bit BCD symbols 5 to a codeword into bits 30-11. The most significant nibble (bits 30,29,28,27) is the leftmost (or most significant) of a BCD coded numeric datum. Values beyond 9 in each nibble (ie 0xA through 0xF) are encoded as follows:

0xA Reserved (probably used for something now - address extension ?)
0xB Character U (for urgency)
0xC " ", Space (blank)
0xD "-", Hyphen (or dash)
0xE ")", Left bracket
0xF "(", Right bracket

BCD messages are space padded with trailing 0xC's to fill the codeword. As far as I know there is no POCSAG specified restriction on length but particular pagers of course have a fixed number of characters in their display.

Alphanumeric messages are encoded in 7 bit ASCII characters packed into the 20 bit data area of a message codeword (bits 30-11). Since four

seven bit characters are 21 rather than 20 bits and the designers of the standard did not want to waste transmission time, they chose to pack the first 20 bits of an ASCII message into the first code word, the next 20 bits of a message into the next codeword and so forth. This means that a 7 bit ASCII character of a message that falls on a boundary can and will be split between two code words, and that the alignment of character boundaries in a particular alpha message code word depends on which code word it is of a message. Within a codeword 7 bit characters are packed from left to right (MSB to LSB). The LSB of an ASCII character is sent first (is the MSB in the codeword) as per standard ASCII transmission conventions, so viewed as bits inside a codeword the characters are bit reversed.

ASCII messages are terminated with ETX, or EOT (my documentation on this is vague) and the remainder of the last message codeword is padded to the right with zeros (which looks like some number of NULL characters with the last one possibly partial (less than 7 bits)).

The documentation I have does not specify how long a ASCII message may be, but I suspect that subsequent standards have probably addressed the issue and perhaps defined a higher level message protocol for partitioning messages into pieces. The POCSAG standard clearly does seem to allow for the notion of encoding messages as mixed strings of 7 bit alpha encoded text and 4 bit BCD numerics, and it is at least possible that some pagers and paging systems use this to reduce message transmission time (probably by using some character other than ETX to delimit a partial ASCII message fragment).

Date: Fri, 21 May 1993 00:05:25 GMT
From: newsflash.concordia.ca!mizar.cc.umanitoba.ca!bison!draco!jim@uunet.uu.net
Subject: USA Callbook Server
To: info-hams@ucsd.edu

I know that there is supposed to be an e-mail version of the Callbook Server which would allow anyone to query the database for USA callsigns. I thought I had this info on how to do it on my diskette but must have forgotten to save it :(.

Anyways can someone either from ARRL or a ham that could post the required fields in an e-mail post to get an answer?

Jim
P.S. The callsign I'm looking for I heard on the AO-21 satellite on Wednesday afternoon and I just want to find the range by checking what state he is from.

Date: 20 May 93 23:35:02 PST
From: csus.edu!netcom.com!netcomsv!hotcity!gregs@decwrl.dec.com
To: info-hams@ucsd.edu

References <1993May13.204520.3947@ttinews.tti.com>,
<14MAY199311153133@cccs.umn.edu>, <randall.737659786@moose>
Subject : Re: BUY BACK 11 METERS! (was Re: Selling the Airwaves -- News from Was

randall@informix.com (Randall Rhea) writes:

>rwh@cccs.umn.edu (RICHARD HOFFBECK) writes:
>
>>In article <1993May13.204520.3947@ttinews.tti.com>, sorgatz@avatar.tti.com
(Eri
>k Sorgatz) writes:
>>> This is actually GOOD NEWS in disguise...let's all write the ARRL and
>>> lobby for the OUTRIGHT PURCHASE of the 27.4051-28.0 MHz band segment!!
>>>
>>> In effect let's BUY BACK 11 METERS AS AN AMATEUR ALLOCATION! It's NOT
>>> CURRENTLY ASSIGNED. IT'S ADJACENT TO OUR 10 METER ALLOCATION and it's
>>> probably not a very attractive area for commercial applications..hence
>>> the price should be low enough to allow the Amateur community to afford
>>> it without worrying about the CBers outbidding us.
>
>We don't need 11 meters, even if we could get it. We have 12 meters and
>10 meters.   12m has better propagation characteristics than 11m and
>is much less crowded. 12m and 17m are quiet, friendly islands of sanity
>in the overcrowded spectrum.
>
>I don't think 11m is for sale anyway. I believe the proposal is to sell
>unallocated bandwidth. There is no way we could outbid Uniden,
>Radio Shack, and other CB manufacturers anyway.
>
>
>--
>
>=-=
>Randall Rhea   Informix Software, Inc.
>Project Manager, MIS Sales/Marketing Systems   uunet!pyramid!infmx!randall

buy it back?! what a waste! the entire 26-28MHz spectrum is amuck with
outband cbers anyway. why bother? you'd just be competing with a bunch of
idiots who could care less about your license status.

greg

Date: (null)
From: (null)

Scott W. Binder, KM6ZD
1000 7th #8
Arcata, CA 95521-6172
(707)826-7473
PGP Public Key on Request

Internet: swbinder@delphi.com
FidoNet: 9@1:125/37
GEnie: S.BINDER1
Delphi: SWBINDER
Packet: KM6ZD@K7WWA.#NORCAL.CA.USA

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End of Info-Hams Digest V93 #620
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